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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,316	11/14/2000	Lars-Olof Ohberg	1878/00037	4171

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EDWARD A. PENNINGTON
SWIDLER BERLIN SHEREFF FRIEDMAN, LLP
3000 K STREET
SUITE 300
WASHINGTON, DC 20007

EXAMINER	
LEE, BENJAMIN WILLIAM	
ART UNIT	PAPER NUMBER
3714	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/700,316	OHBERG ET AL.	
	Examiner	Art Unit	
	Benjamin W. Lee	3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18 and 20-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18 and 20-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed on 01/12/20006 has been entered. Claims 18 and 20-22 and are pending in this application. Claim 18 has been amended and claims 23-30 are new.

Specification

2. The abstract of the disclosure is objected to because of the inclusion of the legal phraseology "said" and "means" in line 3. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 23 and 24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 23 is directed toward a method, which falls under the four statutory categories of invention (e.g. process, machine, manufacture, and composition of matter). However, the process disclosed in the claim includes the judicial exception of an abstract idea (a method of simulating a missile). No physical transformation is present to establish a practical application of the abstract idea. Furthermore, the process disclosed in the claim does not produce a useful, concrete, and tangible result. "Simulating a behavior of the missile in a computer model" is

useful and concrete, but not tangible. The simulation occurs in a computer model and is completely abstract. Therefore, the claim is directed toward non-statutory subject matter.

Claim 24 is dependent on claim 23 and does not disclose any further method steps that produce a useful, concrete, and tangible result. Therefore, the claim is directed toward non-statutory subject matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 18, 20, 21, 23-25, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge (US 5,228,854) in view of Schroeder (US 5,631,830).

Re claims 18, 20, 21, 23-25, and 27-30: Eldridge discloses a method of simulating a missile by means of a missile simulator during testing of an aircraft which includes a weapon system for controlling missiles with which the aircraft may be equipped (see Fig. 4; col. 3, lines 23-39), the method comprising generating a target seeker command position for a simulated target seeker, whereby the simulated target seeker is commanded to adopt a predetermined position (see col. 5, lines 40-44), wherein the simulated target seeker is assumed to move at finite speeds (see col. 6, lines 10-14; col. 9, lines 36-41) and that its movement is constrained to a single plane (see col. 5, lines 55-67), and simulating behavior of the missile in a computer model to generate an actual value signal adapted to the weapon system (see col. 5, lines 55-62; col. 6, lines 55-60). The simulated target seeker is assumed to move at finite speeds because the missile model is updated according to the changing position of the target and the movement of the simulated missile is constrained to a single plane that is perpendicular to the target. Eldridge further discloses computer circuitry operable to run a computer model of a missile (see ref. nos. 172 and 174 in Fig. 4; col. 9, lines 31-36) and interface circuitry communicatively connectable between the computer circuitry and a weapons system of an aircraft (see ref. no. 504 in Fig. 4; col. 6, lines 51-68). Eldridge further teaches that the missile may be partially guided by the radar system of the attack aircraft (see col. 7, lines 3-10).

However, regarding claim 18, Eldridge fails to disclose generating in the weapon system a trouble signal from a deviation between the target seeker command position and the actual value signal, wherein the trouble signal is measured continuously and wherein sampled values for a vector indicating error in amplitude and phase, which represent a difference vector

corresponding to the target seeker command position and a vector corresponding to the actual value signal, are determined and sent to the computer model in the missile simulator, using the trouble signal as a control signal for the simulated target seeker, and repeating the control system steps. Regarding claims 23 and 27, Eldridge fails to disclose generating a signal representing a deviation of a simulated target seeker form a commanded position of the simulated target seeker, using the deviation signal in the missile computer model, and sending the actual value signal to the computer model.

Schroeder teaches a conventional missile control system. The conventional missile control system measures the actual value signal/measured dynamic response 205 of the missile and determines a trouble signal/error signal 220 by comparing the dynamic response 205 to a target seeker command position/commanded dynamic response signal 215. The target seeker/autopilot controller 225 then uses the error signal 220 to actuate the control devices of the missile in order to guide the missile towards the target (see Fig. 2; col. 2, lines 6-26).

Therefore, in view of Schroeder, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the missile control system of Schroeder in the weapons system of Eldridge in order to provide a realistic simulation of the control system of a conventional missile.

8. Claims 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge as modified by Schroeder as applied to claims 18 and 23 above, and further in view of Phillips (Feedback Control Systems, 3rd ed.).

The teachings of Eldridge as modified by Schroeder as applied to claims 18 and 23 above have been discussed.

However, the teachings of Eldridge as modified by Schroeder as applied to claims 18 and 23 fail to disclose or fairly suggest a time-continuous actual value signal is reproduced from a time-discrete vector from the computer model.

Phillips teaches a method of modeling a feedback control system comprising time discrete signals (see p. 468).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the missile control system described by Schroeder by applying a linear time-invariant discrete feedback system, in light of the teachings of Phillips, in order to allow modeling of digital controllers that can accept information only at discrete values of time (see p. 469).

Response to Arguments

9. Applicant's arguments with respect to claims 18 and 20-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Houlberg (5,624,264) discloses a missile launch simulator.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin W. Lee whose telephone number is 571-270-1346. The examiner can normally be reached on Mon - Thurs (8:30AM-6PM), or Alt. Fri (8:30AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on 571-272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

bwl/
Benjamin W. Lee
March 13, 2007

KATHLEEN MOSSER
PRIMARY EXAMINER